RESOURCES AGENCY OF CALIFORNIA

DRAFT POLICY ON COASTAL EROSION PLANNING AND RESPONSE AND BACKGROUND MATERIAL

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FOR DRAFT POLICY

INTRODUCTION

California's coastline is an extraordinary natural resource of significant economic, environmental, recreational, and aesthetic value. This spectacular coastline includes sandy beaches, sheer bluffs, rocky headlands, intertidal zones, and other diverse shoreline types. This variation of landforms, combined with many other factors, results in erosion rates that vary from one portion of the coast to another. With sea levels rising steadily for at least the past quarter century and expected to continue in the future, the issues presented by coastal erosion are also expected to continue.

In addition to erosion from natural forces, California's coastline is considerably affected by human activities. Urbanization and modifications to coastal and inland watersheds have drastically reduced the natural replenishment of sediment to the coastline. California's coastal counties comprise only 24% of the state's total land area, yet these regions are home to approximately 80% of the state's population (Culliton, et al. 1990). Added to the almost 26 million people living in coastal counties are the 32 million annual out-of-state visitors to coastal beaches (King and Potepan 1997), all of whom contribute to increased development and infrastructure in the coastal zone. Our coastal areas not only provide irreplaceable statewide recreational, educational and inspirational opportunities that generate exceptional tourism revenue, but also important habitats for many native and endangered species.

There is a compelling need to adopt and implement clear and consistent policies related to coastal erosion to protect the state's substantial resources along the coast. These policies must provide for the maintenance of critical infrastructure and the protection of natural resources, while at the same time considering the dynamic and sometimes unpredictable nature of the state's coastal bluffs, beaches, and sand resources. The need for action is emphasized by numerous factors.

- **The coast is actively eroding.** Approximately 85 percent of the California coast is actively eroding due to complex oceanographic and geologic conditions, as well as by human activities affecting site conditions and the delivery and movement of sand to and along the coast. Much has been learned in the past quarter century about the processes that affect the erosion of ocean beaches and stability of coastal bluffs.

- **Natural sand supply to beaches has decreased.** It is clear that constructing dams, channeling rivers and streams, and covering land areas with hard surfaces have substantially decreased the supply of sediment from inland watersheds to the coast. These sediments are the building blocks for beaches that provide not only habitat and outstanding recreational opportunities, but also provide a safety buffer between the ocean and our coastal communities.

- **Storm activity threatens the coast.** Storm activity, particularly during El Niño years, has caused severe damage along the California coast, both to the natural environment and human development. The 1982-83 El Niño episode alone caused over $100 million in damages to public, private, and commercial facilities. This storm activity occurs on a periodic basis and California's regulatory and planning policies should be updated to address them.

- **Coastal populations continue to increase.** Since the Resources Agency first issued its Policy on Shoreline Erosion Protection in 1978, California's population has increased from almost 23 million to over 34 million people. Approximately 80 percent of those people live within 30 miles of the coast. California's population is expected to increase to over 40 million people within the next ten years, putting additional development pressure on coastal communities.

- **Natural processes and human activities do not respect political boundaries.** The natural processes and human activities contributing to shoreline erosion do not recognize jurisdictional boundaries; therefore, comprehensive state guidance and coordinated agency policies are needed to help address these issues.

These factors emphasize the need for the Resources Agency to provide clear policy guidance to its departments, boards, commissions and conservancies to help ensure a consistent, coordinated and efficient approach to coastal erosion and beach loss. This document has been prepared to provide that guidance.

This background material and attached draft policy provide a common understanding about coastal erosion planning and response for the State of California. The background material describes historic trends, the economic value of beaches, methods for managing erosion, and jurisdictional considerations. The draft policy identifies general approaches that the Resources Agency recommends its boards, commissions, conservancies and departments consider implementing, consistent with the requirements of the Administrative Procedures Act, when reviewing and authorizing private or public projects, or commenting on permit actions taken by other authorities, including federal, state and local agencies. This material may also be useful to the State Legislature in crafting future comprehensive approaches to addressing shoreline erosion in California. This document provides a suggested strategy, but does not impose any new legal requirements or regulations.

Historic Trends - Demonstrating the Need for Action

In many places where the California coastline is eroding, substantial economic losses have occurred. Every coastal area has its own unique history of damaging events. The last major period of coastal erosion in California occurred in the late 19th century, while coastal erosion rates slowed significantly for the first two-thirds of the 20th century. Between the mid-1940s and the mid-1970s, California experienced an extended period of mild weather, which was accompanied by intense development in high hazard coastal areas. In the mid-1970s, these relatively mild weather patterns shifted to a period of increased storminess. The storms of January 1988 and the El Niño winters of 1977-78, 1982-83 and 1997-98 are the most notable in recent history for intensity and widespread damage. The 1982-83 El Niño episode, the strongest ever recorded in California, caused over $100 million in coastal losses, destroyed 33 homes, damaged another 3000 homes and 900 businesses, and caused $35 million in damages to public recreational facilities. Many of these costs to public and private property owners can be greatly reduced if development is not sited in areas of high erosion hazard, thereby reducing the call for government relief and expensive remediation.

The Economic Value of Beaches - Making a Substantial Contribution

An economic analysis conducted by the California Research Bureau for the Resources Agency determined that ocean-dependent tourism directly and indirectly contributed $9.9 billion to the State's economy in 1992. A study

prepared for the California Department of Boating and Waterways by the Public Research Institute (PRI) reports that direct spending at beaches, through both tourism and recreation, contributed over $14 billion to the state's economy in 1998 (King 1999). Another PRI report found that residents and out-of-state visitors made over 565 million visits to the state's ocean beaches during 1995 alone (King and Potepan 1997).

Conserving these resources requires investment by federal, state, and local governments. There are a variety of cost-sharing agreements that are used for shore protection projects, involving partnerships between two or three levels of government. Depending on the type of project, the minimum local government contributions for joint state and local coastal erosion control projects varies from 15% to 25%. The minimum local government contribution for joint federal, state, and local projects ranges from 5.25% to 17.5%.

These projects must compete with a vast array of other government priorities and it is important to ensure that expenditures are made on the most effective and efficient solutions to coastal erosion issues. Accordingly, it is imperative that the Resources Agency provides the necessary policy guidance to help establish a more consistent, coordinated and efficient approach to coastal erosion and beach loss by its departments, boards, commissions and conservancies.

MINIMIZING HAZARDS FROM COASTAL EROSION

There are three major management strategies to plan for and respond to coastal erosion: hazard avoidance, relocation, and coastal protection. The maximum potential efficacy and acceptability of these strategies cannot be determined without multi-disciplinary project planning, design, monitoring, and evaluation.

Hazard Avoidance – A Common-sense Approach

The most logical method for preventing potential damage to new development in the coastal zone is to not build where coastal erosion will impact development within its expected life. This concept, known as hazard avoidance, is highly encouraged and, if practiced by planners and developers, would circumvent many subsequent permitting and legal challenges. Hazard avoidance has proven effective in the past when used by public and private developers.

Relocation – Moving Development Out of Harms Way

In some instances, development is sited in unstable, erosion-prone areas that eventually may be damaged or destroyed by natural processes acting on the coast. Relocating development away from the erosion hazard zone is the preferred option when responding to the eventual or imminent threat of damage. While relocation of coastal development away from hazardous zones would be the most direct way to eliminate the need for coastal protection, this response may not be technically feasible or the most cost-effective alternative from the property owner's viewpoint.

Coastal Protection - Strategies for Protecting Development

Relocation of coastal development and hazard avoidance planning and response strategies address the effects of coastal erosion, but they do not address beach loss. In those situations where hazard avoidance and relocation are not viable options, coastal protection strategies can be used to reduce the potential for beach loss and

coastal erosion, respectively. There are two general types of coastal protection: hard and soft. A “hard” protection device utilizes concrete and rock in a variety of configurations to absorb or dissipate storm wave energy, generally in the form of seawalls, revetments or bulkheads. Soft protection primarily utilizes dune or beach restoration or enhancement to prevent storm waves from reaching the backshore. A “hard” protection device differs substantially from “soft” erosion response alternatives in that it does not create a new sand beach. “The fact is that no device, conventional or unconventional, creates sand in the surf zone. Any accumulation of sand produced by a device is at the expense of an adjacent section of the shore. This fact distinguishes protective devices from beach nourishment, which addresses the basic problem in beach and coastal erosion--the shortage of sand” (National Research Council 1995).

Hard Protection Devices

Constructing a hard protection device is historically the most common approach to reducing coastal erosion and protecting private or public developments. These devices can minimize wave attack and backshore erosion and are often used to protect public infrastructure. For example, a 6,000-foot seawall in Carlsbad protects a utility corridor as well as an important north-south thoroughfare along this portion of coast. A similar example is the O'Shaughnessy seawall at Ocean Beach in San Francisco, which has protected State Highway 1 since 1929.

Although protective devices have benefits, the adverse impacts of these structures can be substantial. These potential impacts include limiting public access to the shoreline, increasing erosion along adjacent areas, restricting sand input from armored bluffs, reducing the public beach area with the structural footprint, and disrupting the visual character of the coast. Additionally, protective devices are sometimes constructed on an emergency basis during intense storm activity without proper engineering or appropriate materials. This can lead to eventual failure of the device and create subsequent public nuisances or hazards along the beach.

The California Coastal Act (CA Public Resources Code, Section 30000 et seq.) requires that new development minimize risks to life and property in areas of high geologic, flood and fire hazard, assure stability and structural integrity, and neither create nor contribute significantly to erosion, geologic instability, or destruction of the site or surrounding area or in any way require the construction of protective devices that would substantially alter natural landforms along bluffs and cliffs (CA Public Resources Code, Section 30253). Nevertheless, the Coastal Act also permits the construction of protective devices to serve coastal dependent uses, or to protect existing development or public beaches in danger from erosion. If protective devices are permitted, they must be designed to eliminate or mitigate adverse impacts on local shoreline sand supply (CA Public Resources Code, Section 30235). The Coastal Act also

Soft Protection

Beaches can be restored or nourished to increase their width by depositing sand up coast, directly on beaches, or in the nearshore waters offshore of beaches. Impediments to beach nourishment include initial and maintenance costs, limited sand sources, difficulty in transporting and placing sand, the possibility of significant environmental effects, and complicated procedures for obtaining permits. Benefits include the economic and aesthetic values of a wide recreational beach, the restoration of sandy beach habitats, and increased public safety and access.

Beach nourishment is a tool that may not be technically, economically, or environmentally justified for all sites, particularly for those sites with high rates of beach erosion. Other soft protection solutions include dune restoration or enhancement and nearshore sand berm construction.

Regional Management – Moving Beyond Site-specific Solutions

State and federal agencies frequently implement strategies for reducing coastal and shoreline erosion and protecting coastal development on a case-by-case basis. However, the natural processes and human activities that cause shoreline erosion and coastal land loss do not follow political jurisdictional boundaries. A regional approach to addressing shoreline erosion, based on coastal watershed and littoral cell (a portion of coastline where sand flows in, along, and then out of an area) boundaries, is more effective in the long-term. Coordination of federal, state, and local agency activities will be necessary to support such regional approaches.

JURISDICTION

Under state and federal laws, there are a number of agencies with responsibility to plan for and respond to coastal erosion issues. Utilizing effective planning processes is the preferred method for reducing problems related to coastal erosion. However, there must be a mechanism for responding to such issues when they arise. Responding to coastal erosion at the state level is the responsibility of the Department of Boating and Waterways.

- The Department of Boating and Waterways is California's primary agency responsible for working to restore eroded beaches and protecting public coastal infrastructure. Sections 65 through 67.3 of the State Harbors and Navigation Code assign the responsibility for studying shoreline erosion, constructing protective works, and administering state funds for the local share of federal projects to the Department. Sections 69.5 through 69.9 assign responsibility to the Department for administering the California Public Beach Restoration Program. The mission of the program is to preserve and protect the California shoreline by restoring and maintaining natural and recreational beach resources and minimizing economic losses caused by natural and human-induced beach erosion.

Land use planning for addressing coastal erosion is shared between multiple agencies in California. The federal Coastal Zone Management Act requires that state coastal management programs include a "…planning process for shoreline erosion…and restore areas that have been adversely affected by such erosion" (Section 306d.2.I. of the CZMA, as amended through PL 104-150, 1996). The California Coastal Act assigns primary responsibility for carrying out the California coastal management program to the California Coastal Commission, the San Francisco Bay Conservation and Development Commission, and the State Coastal Conservancy.

- California Coastal Commission: the Public Resources Code (Section 30000 et seq.) designates the Coastal Commission as the lead agency responsible for carrying out California's coastal management program by planning for and regulating development in the coastal zone consistent with the policies of the California Coastal Act. The policies of the Coastal Act deal with public access to the coast, coastal recreation, the marine environment, coastal land resources, and coastal development of various types, including energy facilities, ports, and other industrial development.

- San Francisco Bay Conservation and Development Commission: the Government Code (Section 66600 et seq.) establishes the Bay Conservation and Development Commission as the coastal management agency responsible for the San Francisco Bay-Delta portion of the coastal zone. The concerns of this agency are very similar to those of the Coastal Commission.

- State Coastal Conservancy: the Public Resources Code (Section 31100 et seq.) establishes this complement to the planning and regulatory activities of the Coastal Commission and the Bay Conservation and Development Commission through coastal land acquisition and resource restoration and enhancement programs. The Coastal Conservancy uses entrepreneurial techniques to purchase, preserve, improve, and restore public access and natural resources along the California coast and on San Francisco Bay.

There are additional agencies within the Resources Agency with key responsibilities related to shoreline management.

- Department of Parks and Recreation: Division 5 of the Public Resources Code establishes the State Park System, with the Department of Parks and Recreation as the managing agency for that system. The department is the single largest coastal landholder and manager (approximately 25% of the coast) in California. With over 35 million visitors annually to its coastal properties, the Department of Parks and Recreation is a significant stakeholder in coastal resource management and coastal erosion policy implementation. The department's mission is to help preserve the state's extraordinary biological diversity, protect its most valued natural and cultural resources, and create opportunities for high quality outdoor recreation. In addition, the department administers grants to local governments for acquiring and developing public property for parks and recreation purposes.

- State Lands Commission: divisions 6 and 7 of the Public Resources Code assign responsibility to the State Lands Commission for managing and protecting State-owned Sovereign lands and reversionary rights in legislatively-granted lands, including mineral resources and mineral rights.

- Department of Fish and Game: as the State Trustee agency for fish and wildlife under the California Environmental Quality Act (CEQA), the department is responsible for determining the impacts to fish and wildlife for any activities related to shoreline development.

Although these laws and agencies form the heart of California's coastal erosion planning and response program, other agencies play important roles in coastal management and must exercise their mandates and advisory functions in a consistent manner. For example, the Department of Water Resources is an agency with responsibilities related to water supply and flood control projects, both of which can potentially impede the supply of sediment to the shoreline. The federal government also maintains an interest in the state's coastal zone through a number of agencies that protect the coastal environment along the nation's 25,000 miles of coastline. The challenge is to seek a more efficient, consistent, and coordinated approach among these jurisdictions to help address erosion of the state's coastline.

A NEED FOR COORDINATED APPROACHES

One mechanism available to help meet the challenges of addressing shoreline erosion is the California Coastal Sediment Management Workgroup (CSMW), a statewide effort initiated by both the U.S. Army Corps of Engineers and the California Resources Agency in late 1999. The CSMW is the first state and federal partnership developed in California for on-going, multi-agency dialogue and interaction on statewide coastal sediment management issues, such as the use of federal and state funds and project coordination. The group's goal is to facilitate regional approaches to protecting, enhancing and restoring California's coastal beaches and watersheds through federal, state and local cooperative efforts. The CSMW has already been helpful in providing a forum to begin developing regional approaches to shoreline erosion in California.

DEFINITIONS

beach	A deposit of non-cohesive material (e.g. sand, gravel) situated on the interface between dry land and the sea (or other large expanse of water) and actively "worked" by present-day hydrodynamics processes (i.e. waves, tides and currents) and sometimes by winds (Voigt 1998).
coast	A strip of land of indefinite length and width (may be tens of kilometers) that extends from the seashore inland to the first major change in terrain features (Voigt 1998).
coastal-dependent use	Any development or use which requires a site on, or adjacent to, the sea to be able to function at all (CA Public Resources Code, Section 30101).
coastal watershed	A geographic area in which all sediments, dissolved materials, and sources of water, including lakes, rivers, estuaries, wetlands, and streams, as well as ground water, drain to a sea or ocean (adapted from the US EPA Office of Water, Publication EPA 842-F-98-006, "Your Coastal Watershed").
coastal zone	The land and water area of the State of California from the Oregon border to the border of the Republic of Mexico, specified on the maps identified and set forth in Section 17 of that chapter of the Statutes of the 1975-76 Regular Session enacting this division, extending seaward to the state's outer limit of jurisdiction, including all offshore islands, and extending inland generally 1,000 yards from the mean high tide line of the sea. In significant coastal estuarine, habitat, and recreational areas it extends inland to the first major ridgeline paralleling the sea or five miles from the mean high tide line of the sea, whichever is less, and in developed urban areas the zone generally extends inland less than 1,000 yards. (CA Public Resources Code, Section 30103 (a))
coastline	(1) The line that forms the boundary between the coast and the ocean; (2) the line where terrestrial processes give way to marine processes, tidal currents, wind waves, etc. (Voigt 1998).
development	"'Development' means, on land, in or under water, the placement or erection of any solid material or structure; discharge or disposal of any dredged material or of any gaseous, liquid, solid, or thermal waste; grading, removing, dredging, mining, or extraction of any materials; change in the density or intensity of use of land, including, but not limited to, subdivision pursuant to the Subdivision Map Act (commencing with Section 66410 of the Government Code), and any other division of land, including lot splits, except where the land division is brought about in connection with the purchase of such land by a public agency for public recreational

	use; change in the intensity of use of water, or of access thereto; construction, reconstruction, demolition, or alteration of the size of any structure, including any facility of any private, public, or municipal utility; and the removal or harvesting of major vegetation other than for agricultural purposes, kelp harvesting, and timber operations which are in accordance with a timber harvesting plan submitted pursuant to the provisions of the Z'berg-Nejedly Forest Practice Act of 1973 (commencing with Section 4511).” (CA Public Resources Code, Section 30106)
feasible	Capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, social, and technological factors (CA Public Resources Code, Sections 21061.1 and 30108).
shoreline	The line where a body of water and the shore meet (Webster's Collegiate Dictionary, 10th Edition).
significant effect	A substantial, or potentially substantial, adverse change (CA Public Resources Code, Section 21068).

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DRAFT POLICY ON

COASTAL EROSION PLANNING

AND RESPONSE

DRAFT POLICY ON COASTAL EROSION PLANNING AND RESPONSE

In recognition of the exceptional environmental, economic and recreational value of our coastal resources, the Resources Agency is committed to conserving and restoring California's coastline and beaches. This Draft Policy on Coastal Erosion Planning and Response (Draft Policy) provides a model for policy guidance about the approach that boards, commissions, conservancies and departments within the Resources Agency (collectively referred to as "departments") should consider in addressing coastal erosion and beach loss along the California coast. It is a model policy document that may apply to developing projects, authorizing private or public projects, or commenting on permit actions taken by other authorities, including federal, state, and local government agencies. This Draft Policy could also be useful in efforts to assist the public, private sector, government agencies or other interested parties in better understanding the general approach that these departments may pursue.

The effectiveness of the actions identified in this Draft Policy depends on the steps each department takes to carry them out. The Resources Agency recommends that departments with programs that affect erosion planning and response procedures consider adopting or amending standards to conform to those suggested in this document. This draft policy is provided as a model for state agencies to incorporate pursuant to the Administrative Procedures Act, or by the State Legislature when considering legislative approaches to addressing shoreline erosion in California. Examples of when this model policy could be applied include:

A. Evaluating the construction of private or public development projects;

B. Commenting on or preparing environmental impact reports or functionally equivalent documents pursuant to the California Environmental Quality Act, environmental impact statements pursuant to the National Environmental Policy Act, U.S. Army Corps of Engineers and U.S. Coast Guard public notices, and other relevant environmental documents;

C. Issuing California Department of Fish and Game streambed alteration agreements and reviewing impacts of developments on marine resources;

D. Issuing California State Lands Commission leases for tidelands, and industrial, commercial, mineral extraction, recreational and other uses;

E. Planning, designing and carrying out Department of Boating and Waterways, Department of Water Resources and State Water Resources Control Board projects;

F. Planning, acquiring and improving State Park System properties;

G. Considering coastal development permits and San Francisco Bay Conservation and Development Commission permits, and certifications of consistency with the California Coastal Management Program under the provisions of Section 307 of the Federal Coastal Zone Management Act;

H. Reviewing and certifying local coastal programs, port master plans, and other plans as required by the California Coastal Act;

I. Funding federal, state, regional, or local coastal protection or shoreline enhancement projects by the Department of Boating and Waterways and others; and

J. Reviewing mined-land reclamation plans, and classifying and designating significant mineral resources.

Local coastal programs (LCPs) required by the California Coastal Act offer a unique opportunity for local agencies to deal with long-term coastal erosion approaches in an effective and coordinated manner. Each relevant department within the Resources Agency should cooperate with the Coastal Commission and local governments by reviewing LCP work programs, offering technical assistance to identify issues, and suggesting ways to address these issues in carrying out the Draft Policy. Maximizing the natural protection and recreational potential of the state's shoreline by maintaining sandy beaches, preserving fish and wildlife habitat, and protecting options for revenue-producing activities are objectives of primary importance to the State of California.

I. OVERARCHING PRINCIPLES

A. The Resources Agency and its constituent departments should be proactive in protecting and enhancing natural coastal landforms and processes, such as increasing sediment transported through coastal watersheds to the coastline.

B. While coastal developments and protective devices may be safe from hazard for many years, they should be considered for removal once they are no longer safe or necessary.

C. Given the different methods available for addressing coastal erosion and beach loss, a regional analysis of the state's coastal resources and hazards should be used to determine the best coastal management strategy for each region along California's coast.

D. Federal, regional and local cost-sharing partnerships should be pursued and promoted to leverage various resources and to encourage multi-objective regional approaches to coastal projects.

E. Restoration of beaches should be pursued where it is deemed that further loss of beach or beachfront land used for habitat, recreation, tourism, public safety, coastal access, or coastal protection is unacceptable.

F. Development on coastal lands subject to erosion can threaten public safety, public and private property, habitats and recreational opportunities and should be avoided whenever possible. The preferred order for addressing development on coastal lands should be:

1. Hazard avoidance should be the preferred method for addressing coastal erosion in California. State law requires that new coastal development shall minimize risks to life and property in areas of high geologic, flood, and fire hazard. In addition, new development shall assure stability and structural integrity, and neither contribute significantly to erosion, geologic instability, or

destruction of the site or surrounding area or in any way require the construction of protective devices that would substantially alter natural landforms along bluffs and cliffs. (CA Public Resources Code, Section 30253.)

2. In cases where existing development is threatened, a first priority should be to evaluate the feasibility of relocating such development. A second priority should be to evaluate the use of beach nourishment, if it is feasible and can be used effectively, without significant effects on the environment, to reduce the threat or risk of erosion to existing development.

3. The use of hard structures should be considered only after these and other less environmentally damaging alternatives are evaluated and deemed infeasible.

II. PLANNING AND REGULATION

A. In planning for the use of land adjacent to the coastline, Resources Agency departments should assure the following:

1. Effective land use plans and regulations are in place, including coastal construction setback zones, to reduce the vulnerability of existing and future development to beach and coastal erosion, seasonal beach fluctuations, coastal flooding, and other natural events;

2. Measures are taken to control surface runoff, groundwater infiltration, and other processes that contribute to bluff instability; and

3. Procedures are established for the orderly demolition or relocation of damaged, hazardous, or threatened development and for the disposition of parcels of land that cannot safely be developed.

B. Projects constructed within coastal watersheds can have significant impacts on the coast by blocking the flow of sediment to the coastline. Developments planned, constructed, or authorized by State agencies within coastal watersheds should meet the following conditions:

1. Whenever feasible, the development, together with adjacent developments allowed under local or regional land use regulations, will not reduce the quality or quantity of the natural supply of sediment to the coastline;

2. Where feasible and appropriate, the project should include measures to ensure an unimpeded sediment supply; and

3. The development should comply with any existing regional plan governing the sediment budget within the coastal watershed in which the development is planned.

C. All dredged or excavated material removed from within the coastal zone or offshore waters that complies with state and federal toxicity guidelines and is suitable in quantity, size, distribution, and composition is a valuable resource and should be considered for discharge as follows:

1. Deposited directly onto a beach or a nearshore berm in an appropriate manner for effective beach restoration and nourishment and in a manner to protect significant natural resources and the public use of such resources;

2. When beach nourishment is unnecessary, infeasible or inappropriate at the time of dredging, the sand component of the material should be stored for eventual use for beach nourishment, provided that suitable locations are available and steps are taken to protect both significant natural resources and the public use of such resources at those locations;

3. In those instances where quantity, size, distribution, and/ or composition of dredged or excavated material limit its use as described in paragraphs C1 and C2, the material should be used to optimize its value as a mineral resource, utility as construction material, or material for other forms of habitat restoration.

D. Under California law, fill or artificially induced shoreline accretions do not affect property boundaries. To preserve evidence of the position of pre-construction boundaries and beach topography, a record of survey map should be provided to the State Lands Commission, California Coastal Commission and local government before any coastal erosion control measure is approved. The survey map should identify the present topography of the beach and show at least the following:

1. An accurate positioning of the present, pre-construction mean high tide line (MHTL) referenced to the North American Vertical Datum of 1988 (NAVD 88);

2. Sufficient ties to at least two existing record monuments of second order or better, referenced to the North American Datum of 1983 (NAD 83), which will not be disturbed by proposed construction; and

3. The accurate position of any monument shown on a map filed in an office of public record that will be disturbed by the proposed construction, together with a plan to replace the monument in its original position or reference it to nearby record monuments.

E. The guiding principle behind the planning and development of State Park System units is hazard avoidance. Any development in areas subject to erosion should be expendable or movable unless specific determinations have been made that the risk of loss of the development is clearly offset by its necessity and value. Structural protection and re-protection of developments are allowed only when the cost of protection is commensurate with the value (physical and intrinsic) of the development to be protected, and when it can be shown that the protection will not have a significant adverse effect on the

beach or nearshore environment. (CA Department of Parks and Recreation, Coastal Erosion Departmental Notice 99-18 dated December 18, 1999.)

III. COASTAL PROTECTION PROJECTS

The first priority, if development is threatened, should be to evaluate the feasibility and desirability of re-locating the development. If re-location is not feasible or appropriate, the next step is to evaluate projects that minimize or eliminate the erosion threat. Both private parties and public agencies propose erosion response projects. Resources Agency departments should use the following principles when evaluating erosion response project applications:

A. Restoration and nourishment of beaches to protect against coastal erosion and beach loss should be the preferred erosion response measure where at least the following conditions are met:

   1. Restoration and nourishment will not have a significant effect on cultural, and paleontological resources and living marine resources or their habitats;

   2. Restoration and nourishment will not result in significant effects elsewhere on the coast;

   3. Non-structural measures are included to maintain the affected beaches in a nourished state; and

   4. Measures are included to encourage regional coordination to maximize the effectiveness of the operation within the coastline area (littoral cell) being restored or nourished.

B. Construction of seawalls, revetments, breakwaters, groins, or other artificial rigid structures for coastal erosion control should be discouraged unless each of the following conditions are met:

   1. No other non-structural alternative is effective or feasible to reduce erosion risk over the useful life of the protected development;

   2. The project is to serve a coastal dependent use or to protect an existing principal development or public beach in danger from erosion;

   3. The project is consistent with the erosion solutions presented in the certified local coastal plan or other regional coastal management plan that identifies and comprehensively addresses regional coastal hazard issues;

   4. A report by a licensed geologist demonstrates that a primary structure is at imminent risk from coastal erosion. Further, conclusive evidence should be presented in a report by a licensed engineer that a protective device is designed and can be constructed and maintained to withstand the specified design criteria that reflect the range of conditions that exist at the project

site, and will successfully mitigate the effects of coastal erosion while minimizing the significant effects of the project on other sections of the shoreline;

5. There will be no net reduction in public access to, and use and enjoyment of, the natural coastal environment, and construction of a protective device will preserve, enhance or provide access to related public recreational lands or facilities;

6. The project will not have significant effects on cultural, and paleontological resources, or living marine resources and habitats; and

7. Measures are included to ensure that the protective structure can and will be maintained through its design life and removed at the expense of the project sponsor if the protective device fails or has an unmitigated effect on other sections of coastline, or is no longer necessary.

C. Projects shall not cause loss or destruction of State mineral resources, nor use the State's mineral resources without first securing the necessary approvals from the State Lands Commission. The State Lands Commission shall determine the compensation for the use of the State's mineral resources when issuing a lease.

D. Projects should not cause the loss or destruction of public beaches, dunes, and coastal accessways.

IV. STATE PARTICIPATION IN EROSION RESPONSE PROJECTS

A. State financial participation in coastal erosion response projects is recommended when the following conditions are met:

1. Public benefits, including the long-term environmental, social, and economic impacts of the project, are found to be greater than public costs. The area to be protected should contain substantial and valuable public-owned lands or development of greater value than the cost of the proposed project, and the protection scheme should provide, maintain, or improve public use and enjoyment of the coastline;

2. The protection project is designed to take into account the long-term impacts of erosion on all adjacent coastline sections subject to similar or related erosion conditions and takes into consideration the needs of the entire region;

3. Any project-related significant effects on cultural and living marine resources and their habitats will be offset by adequate mitigation and preservation measures;

4. The project does not encourage or support development in areas of significant coastal erosion;

5. The project plan should use non-structural solutions such as beach restoration and nourishment as the preferred alternative or as a part of the recommended alternative, unless it is not appropriate or feasible; and

6. Public access at least every one-half mile is provided to the coastline areas where the protection project is to be carried out, unless the only way to provide for public safety and sensitive resource protection is through temporal or spatial restrictions on public access.

B. State project sponsors should engage federal, regional and local government agencies as partners to share project costs and liabilities. State sponsors should also encourage multi-objective project planning and implementation.

C. In an emergency situation when erosion is threatening permitted primary development, State agencies should respond immediately by offering technical assistance for temporary protective actions. Assistance should first be directed to emergency situations involving public assets or where human health is in danger. All temporary emergency-response measures must comply with public access and use laws and regulations. All emergency actions should be considered temporary until evaluated for compliance with applicable policies, regulations, and statutory requirements; removal or modifications may be required.

D. To be most effective, this policy should be supported by long-term, on-going research and planning studies. The departments should work together to support this research and ensure that all maps, plans and standards are used when appropriate, and updated as new information is available. Other studies and research needs may be identified from time to time and, as appropriate, should be undertaken by some or all Resources Agency departments.